

Cooper's Hawk (*Accipiter cooperii*)

Status

Federal: None

State: Watch List

Other: Federal Migratory Bird Treaty Act

Recovery Plan: None

Placer Legacy Category: Class 3



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Distribution

North America

Cooper's hawk breeds throughout much of the United States including portions of southern Canada and northwest and north-central Mexico (Curtis et al. 2006). Individuals breeding within the northern portions of the range migrate south during the cold months of the year. Migrating individuals spend the winter months either in the central or southern United States or Mexico. Cooper's hawk is also thought to winter as far south as Costa Rica and possibly even Panama (Curtis et al. 2006).

California

Cooper's hawk is a year round resident and breeder throughout much of California. However, it is absent from the higher elevation areas of the Sierra Nevada Mountains. Numbers of Cooper's hawk found throughout California greatly increase during the winter due to migrants from the north (California Department of Fish and Game 1978).

Placer County Plan Area

Historical

There is no information on historic population size and distribution of Cooper's hawk that is specific to the Plan area. One historical record of breeding in Placer County (though not in the Plan area) is in the California Natural Diversity Database (2009).

Current

Cooper's hawk is confirmed to breed within Placer County (Webb 2009). It is regularly seen in small numbers during the summer months and is seen infrequently during the remaining portions of the year. This species is found in the valley, foothills and mountainous areas of the county (Webb 2009) and breeds in valley foothill riparian forest. In the fall, a portion of birds breeding at higher elevations may move down slope to spend the cold months in the valley and foothills and return to higher elevation territories in the spring.

During surveys conducted for the Placer County Natural Resources Report in 2003, Jones and Stokes biologists observed Cooper's hawk in eight watersheds surveyed: Upper Doty Ravine,

Upper Orr Creek, Rock Creek, Upper Antelope Creek, Antelope Creek, Dutch Ravine, Linda Creek, and Miners Ravine (Jones and Stokes 2004).

Population Trends

North America

As of 1993, the Cooper's hawk was listed in 16 states as an Endangered, Threatened or a Species of Special Concern (Curtis et al. 2006). However, a study completed on the 9-year stability of nesting area reoccupancy rates suggests no present decline in population (Rosenfield et al. 1991). Furthermore, the number of Cooper's hawk detected per observer hour in the United States has increased steadily from 1980 to 2008 (<http://audubon2.org/cbchist/graph.html>).

California

Cooper's hawk populations were documented as declining in California during the 1950's and 1960's. Some breeding populations sharply declined in the 1960's and 1970's in areas such as the Sacramento Valley and Santa Cruz and Santa Clara counties. However, Cooper's hawk appeared to be stabilizing by the 1970's (California Department of Fish and Game 1978).

Placer County Plan Area

There are no long-term data on Cooper's hawk population size in western Placer County.

Natural History

The habitat requirements, ecological relationships, life history, and threats to Cooper's hawk described below are summarized in diagram form in the envirogram (Figure 1).

Habitat Requirements

A breeding resident throughout most of the wooded portion of the state, Cooper's hawk is found in dense stands of oak and conifer woodlands, valley foothill riparian habitat, savanna/grassland edge habitat, at the suburban/wildland interface and in wooded suburban and urban areas (Curtis et al. 2006). Cooper's hawk breeds within elevations ranging from sea level to above 9000 feet. Cooper's hawk forages mostly on small birds and small mammals in woodlands, habitat edges, and in open habitats adjacent to wooded areas.

Reproduction

Cooper's hawk usually nests in second-growth conifer stands or in deciduous riparian areas, usually near streams. The nest is a stick platform lined with bark. "A pair, undoubtedly the same, may nest year after year in the same tract of woods, but a new site is as a rule taken each year, even though the nest is sometimes built on top of the residue of a crow, squirrel, or wood rat nest. Occasionally, a pair uses the same nest for four years" (The Hawk Conservancy Trust 2005). Both parents help raise 4-5 young with the male providing most of the food during the incubation and early nestling stages (Ehrlich 1988).

Dispersal Patterns

Young remain together near the nest for about 5 or 6 weeks. After that they will disperse an average of 7.4 to 8.7 miles from the natal site, but have been documented to disperse as close as 1.5 miles and as far as 21.8 miles (Curtis et al. 2006). Migrant males generally arrive on breeding grounds before females in spring, and females generally depart before males in fall, though there is often overlap (Curtis et al. 2006). Spring migration occurs roughly between March and May and fall migration between August and early November.

Longevity

The USGS Bird Banding Laboratory has recorded a recaptured banded Cooper's hawk that was at least 13 years 10 months old (Klimkiewicz 2002). Birds of North America reports the maximum age as 12 years (Curtis et al. 2006).

Sources of Mortality

Adult Cooper's hawk is prey for red-tailed hawk (*Buteo jamaicensis*), northern goshawk (*Accipiter gentiles*), and great horned owl (*Bubo virginianus*). Eggs may be depredated by raccoon (*Procyon lotor*) and American crow (*Corvus brachyrhynchos*) (Curtis et al. 2006). Other sources of mortality include flying in to windows and vehicular collisions (Keran 1981). Declines in reproductive success and lower numbers of Cooper's hawk detected during migration counts in the 1940's and 1950's were attributed to organochlorine contaminants, especially DDE (Curtis et al. 2006).

Behavior

Territories are maintained year round by resident birds. Cooper's hawk nests are normally separated by at least a mile-and-a-half. Rosenfield et al. (1991) compiled nesting densities from various studies. These densities ranged from a low of 12,33 acres per pair in North Dakota in 1987, to a high of 818 acres per pair in a tree plantation in southeastern Wisconsin in 1986.

A swift flyer, the Cooper's hawk has a rapid wing beat and is able to negotiate heavily vegetated woodland habitats. They spend much of their time sitting at a perch waiting to ambush passing birds. They use cover, including manmade structures, to conceal their approach. In open areas, Cooper's hawks may drop on prey from high flight. They capture birds at bird feeders as well. Like other Accipiter species, the Cooper's hawk mainly hunts bird species including American Robin (*Turdus migratorius*), Jays (*Cyanocitta*, *Aphelocoma*), Northern Flicker (*Colaptes auratus*), and European Starling (*Sturnus vulgaris*). They will also supplement their diet with medium sized mammals such as chipmunks (*Tamias*, *Eutamias*) (Curtis et al. 2006).

Movement and Migratory Patterns

Cooper's hawk is mostly a yearlong resident, though some from the more northern areas migrate into California and those in the Sierra Nevada Range move down slope and south from areas of heavy snow in autumn and return upslope or north in spring.

Ecological Relationships

Cooper's hawk is territorial during the breeding season and more likely to respond to conspecific individuals of the same sex, though it also responds aggressively to heterospecific intruders at the nest area (Curtis et al. 2006). It is generally solitary outside of breeding season (Curtis et al. 2006).

Population Threats

Habitat loss and degradation are primary threats to Cooper's hawk, especially in the oak woodlands and savannas of the foothill region. Deforestation has also been cited as a current threat and may become increasingly important. Required habitat (dense forest isolated from human activities or narrow riverine forest corridors) is under pressure from forest product harvest and development.

Context for a Regional Conservation Strategy

There is little information on Cooper's hawk distribution and density in western Placer County, though the species apparently nests in low densities in wooded areas throughout the Plan area. The species requires landscapes with forested habitats, especially riparian habitats, for nesting and woodland and forest edge habitat for foraging. Cooper's hawk is found in all the counties surrounding Placer County, though it is absent from the higher elevation areas of the Sierra Nevada Mountains. Because the species is a breeding resident throughout most of the wooded portion of the state, the population within the Plan area is not of particular statewide significance. Individuals typically nest in the same area in successive years; therefore, areas with known nesting Cooper's hawks should be protected. Acquisition and conservation priority should be given to riparian forests (for nesting) within a landscape that includes wooded habitat for foraging.

Modeled Species Distribution in the Plan Area

Model Assumptions

Year-round Habitat (Primary Habitat)

Modeled year-round habitat includes nesting habitat and is defined by mixed oak woodland, blue oak woodland, interior live oak woodland, valley oak woodland, oak-foothill pine woodland, oak woodland savanna, and valley foothill riparian land-cover types. Modeled year-round rural and urban habitats include the following land-cover types: rural residential, rural residential forested, urban suburban, urban golf courses, urban parks, urban riparian, urban woodland, and eucalyptus woodland.

Foraging and Movement Habitat (Secondary Habitat)

Cooper's hawk foraging and movement habitat is defined by vernal pool complex, annual grassland, pasture, foothill chaparral, fresh emergent wetlands, seasonal wetlands, orchards, and rice.

Rationale

Cooper's hawks are tolerant of altered landscapes and nest in urban and suburban areas, as long as suitable wooded features remain. Cooper's hawks are year-round residents in the Plan area, though more individuals are likely present during the winter, as overwintering individuals supplement the resident year-round population. Cooper's hawks forage mostly for small birds and some small mammals in woodlands, habitat edges, and open habitats adjacent to wooded areas.

Model Results

Figure 2 shows the modeled potential habitat for Cooper's hawk within the Plan area. Much of the Plan area provides suitable modeled habitat for Cooper's hawk, with most of the nesting habitat occurring in the wooded, eastern portion, and secondary habitat occurring in the western portion.

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Envirogram Narrative

Cooper's Hawk (*Accipiter cooperi*)

The envirogram was created based on the information provided in this species account. The envirogram is a tool to help depict and organize the most important ecological factors that affect a population or group of populations of a particular species. The envirogram consists of Direct Components – components of the environment that directly affect a species' chances to survive and reproduce, and several webs comprised of distal factors (i.e., Indirect Components, Management Problems, and Mitigation Actions) that act in sequence to affect the Direct Components. The Direct Components consist of four major categories: resources, hazards, reproduction, and dispersal. Each of these is subdivided as necessary. For example, resources are subdivided into foraging habitat, breeding habitat, and prey.

The webs identify the underlying ecological processes or human actions that influence each Direct Component. Distal factors in the web activate proximate components. Each of these pathways in the web are constructed from right to left, with Indirect Components immediately to the left of Direct Components directly affecting the Direct Component, and secondary Indirect Components affecting primary Indirect Components. Management Problems can directly affect the Indirect Components, and Mitigation Actions provide solutions to remedy the Management Problems.

Resources

Res1: Cooper's hawk forages in natural and planted forests and woodlands, along edges, and in well-treed residential areas. The persistence of these habitats in Placer County depends on the conservation of riparian woodlands and other forested areas along with older residential areas that could be lost to development, urbanization, and agricultural conversion.

Res2: Cooper's hawk nests in trees in valley foothill riparian and other forest types. Loss of forest and woodland vegetation to development or agriculture has reduced breeding habitat, and mitigation includes conservation of the remaining habitat and restoration actions.

Res3: The Cooper's hawk preys on medium-sized songbirds and some rodents. A healthy prey population depends on productive forest and woodland communities along with favorable weather and climate. Management problems and mitigation are the same as for path Res1.

Hazards

Haz1: As with most species in Placer County, the biggest threat to Cooper's hawk is habitat loss and degradation—the loss of riparian vegetation, forests, and woodlands. Management problems and mitigation for these problems are the same as path Res1.

Haz2: Cooper's hawk is prey for larger hawks and owls. A shortage of alternate prey, perhaps resulting from unfavorable weather or excessive vertebrate pest control (e.g., control of avian pests such as starlings and rodent control) may result in excessive mortality from this source. Integrated management for conservation and agricultural production should take the needs of raptors into account.

Haz3: Cooper's hawk experiences egg and nest predation from edge-associated species such as crows and raccoons. Heavy predation from these species is related to poor vegetation condition and the patch size of the nesting habitat. Poor vegetation management and a failure to conserve large patches of breeding habitat create habitat for edge-associated species.

Managing large areas of riparian zones and woodlands as conservation areas can help reduce this hazard.

Haz4: Collisions with vehicles are a source of mortality to Cooper's Hawks. Roads and other development transecting foraging areas bring hawks and vehicles together, a result of failing to consider conservation when planning development. Managing large areas of riparian zones and woodlands as conservation areas can help reduce this hazard.

Haz5: Cooper's hawk is sometimes killed by colliding with windows. This usually occurs when the hawks are chasing bird prey. The interspersed of residential areas into Cooper's hawk foraging areas results in part from poor planning in the past; however, putting raptor silhouettes and vertical stripes on windows where collisions are common can effectively mitigate this problem.

Haz6: Resident Cooper's hawk competes for food with migratory conspecifics during the winter. Such competition occurs when prey species are in short supply because of unfavorable weather or poor habitat conditions. Improper vegetation management and excessive control of vertebrate pests can cause or exacerbate these problems. They can be mitigated somewhat by integrating wildlife needs into agricultural and vegetation management decisions.

Reproduction

Rep1: Individual nesting and fledging success in Cooper's hawk depends on the abundance of prey and on nest site availability. The former depends on productive foraging habitats that have not been subject to development, urbanization, and agricultural conversion and on favorable weather for prey population growth. The latter depends on the presence of valley foothill riparian and other forest types that also have not been subject to development, urbanization, and agricultural conversion. Managing riparian zones and woodlands as conservation areas helps ensure reproductive success in Cooper's hawk.

Dispersal and Migration

D&M1: The small breeding population of Cooper's hawk in Placer County consists of year-round residents. Thus, the population depends on good habitat conditions and decent prey abundance throughout the year. Improper vegetation management and excessive pest control at any time of the year can threaten the well being of this population. These problems can be avoided to some extent by integrating wildlife needs into agricultural and vegetation management decisions.

D&M2: Juvenile birds disperse a relatively short distance from the natal site. Thus, the availability of suitable habitat in which these birds can establish territories relies on the conservation of many large blocks of riparian woodlands and other forested areas in close proximity to each other.

Cooper's Hawk, *Accipiter cooperi* (page 1)

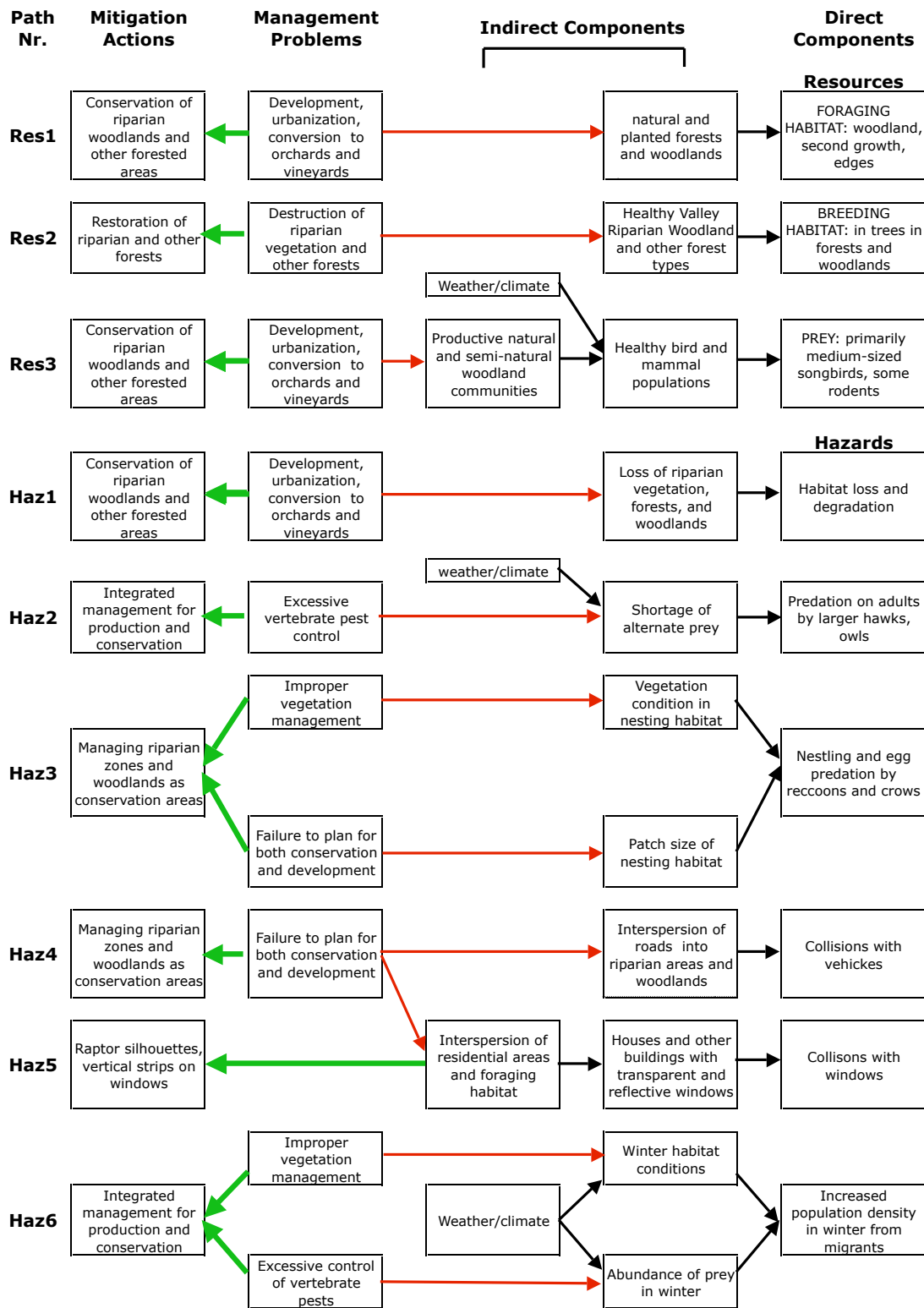
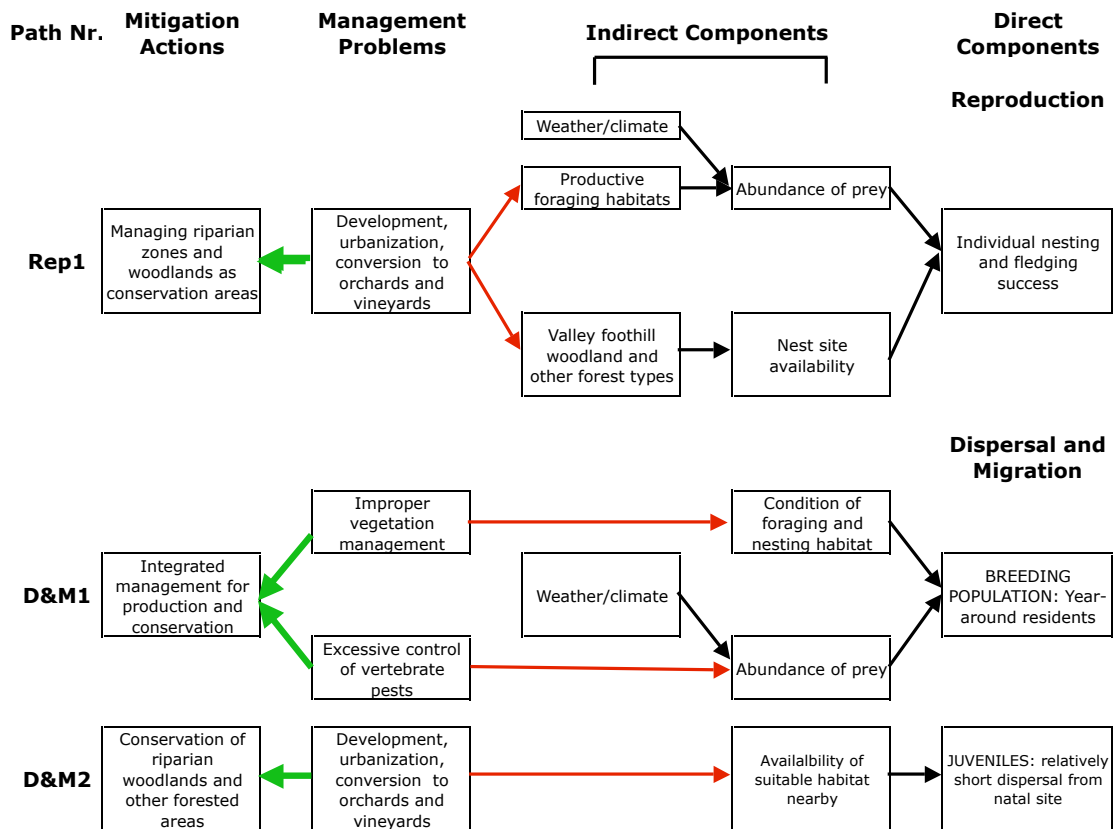


Figure 1. Envirogram. Key to abbreviations: Res = Resources; Haz = Hazards; Rep = Reproduction; D & M = Dispersal and Migration.

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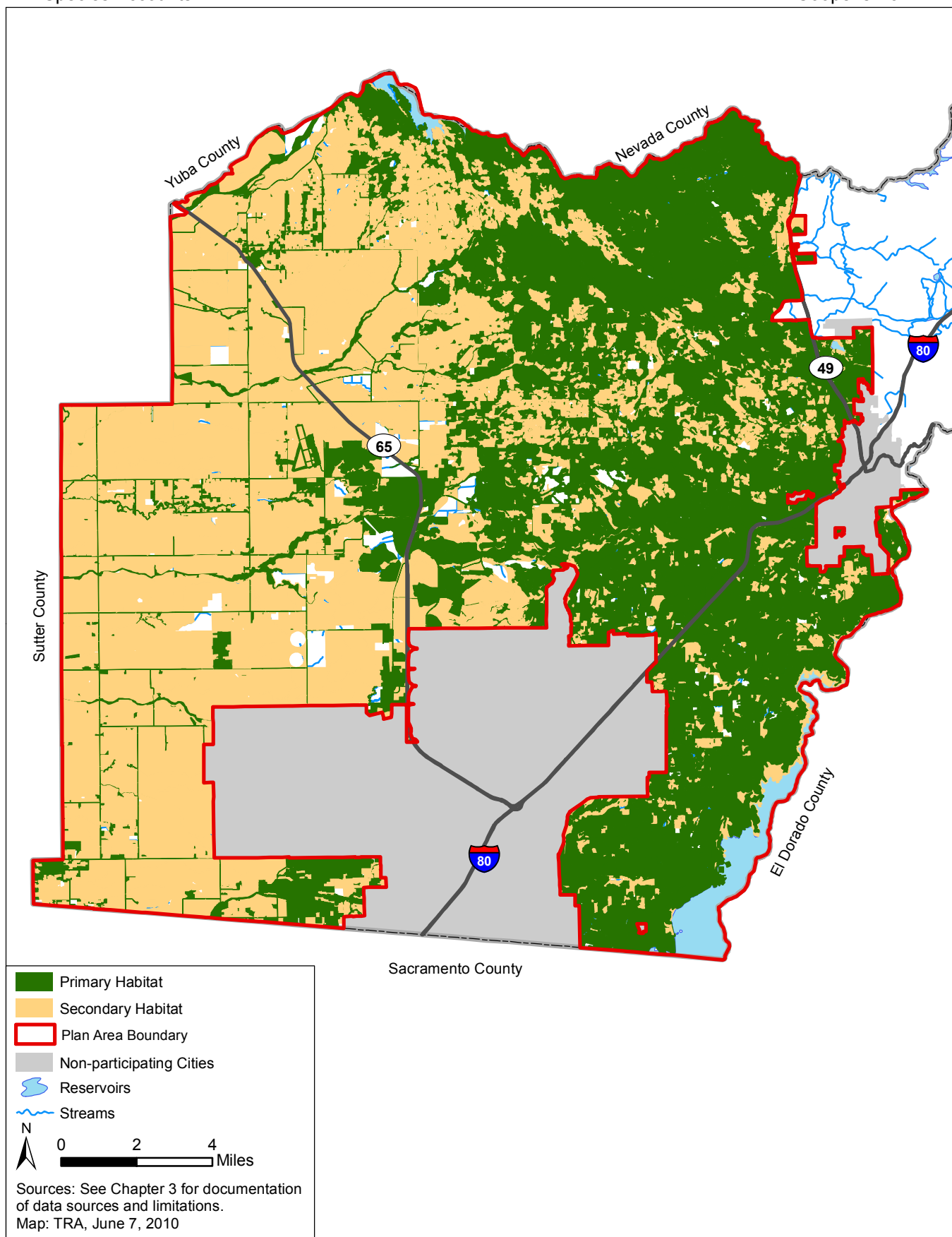


Figure 2. Cooper's hawk modeled habitat distribution. The habitat map present outcomes of the draft model described above. The purpose of the model is to identify areas within the Plan area where the species occurs or could occur based on known habitat requirements. Those data on which this map is based are regional in scale. This map should not be used for site planning and should be verified in the field.